

We claim:

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1. An polymerizable composition comprising:
- (a) an aqueous microemulsion comprising one or more hydrophobic monomers, one or more hydrophilic and/or amphiphilic monomers, one or more initiators; and
- (b) at least one thickening agent comprising a polymer or copolymer of acrylic acid.
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2. The polymerizable composition of claim 1 wherein the thickening agent comprises a polymer of molecular weight between about 200,000 and about 800,000.
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3. The polymerizable composition of claim 1 wherein the thickening agent comprises a substantially linear polymer.
4. The polymerizable composition of claim 1 wherein the polymer comprises at least about 20 weight percent acrylic acid monomer.
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5. The polymerizable composition of claim 1 wherein the polymer comprises at least about 80 weight percent acrylic acid monomer.
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6. The polymerizable composition of claim 1 further comprising one or more water-soluble or water-dispersible additives.
7. The polymerizable composition of claim 6 wherein at least one of the water-soluble or water-dispersible additives is selected from the group consisting of electrolytes, plasticizers, antimicrobial agents, therapeutic agents, and combinations thereof.

Sub A1/7

8. A pressure sensitive composition comprising a pressure sensitive microemulsion and at least one thickening agent comprising a polymer or copolymer of acrylic acid.

5 9. A method of forming a polymerized microemulsion pressure sensitive adhesive composition in contact with a substrate, comprising the steps of:

(1) providing an aqueous microemulsion comprising one or more hydrophobic monomers, one or more hydrophilic and/or amphiphilic monomers and one or more initiators;

10 (2) combining the aqueous microemulsion with at least one thickening agent comprising a polymer or copolymer of acrylic acid;

(3) coating the thickened microemulsion onto the substrate; and

(4) irradiating the microemulsion in order to form the pressure sensitive adhesive composition in contact with the substrate.

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Sub A1/7 10. The method of claim 9 wherein the thickening agent comprises a polymer of molecular weight between about 200,000 and about 800,000.

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11. The method of claim 9 wherein the thickening agent comprises a substantially linear polymer.

12. The method of claim 9 wherein the polymer comprises at least about 20 weight percent acrylic acid monomer.

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13. The method of claim 9 wherein the polymer comprises at least about 80 weight percent acrylic acid monomer.

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14. The method of claim 9 wherein the irradiation is ultraviolet radiation in the range of 280 nm to 400 nm.

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Sub 15. A method of forming a polymerized microemulsion pressure sensitive adhesive composition in contact with a substrate, comprising the steps of:

(1) mixing hydrophilic monomer(s) and/or amphiphilic monomer(s) in a weight percent ratio of from about 100/0 to about 0/100 to form a first mixture;

5 (2) mixing hydrophobic monomer(s), having a glass transition temperature suitable for forming a hydrophobic pressure sensitive adhesive, into the first mixture in a weight percent ratio of from about 80/20 to about 10/90 hydrophobic monomers/first mixture to form a second mixture;

10 (3) mixing surfactant(s) into the second mixture in a weight percent ratio of from about 5/95 to about 30/70 surfactant/second mixture to form a third mixture;

(4) mixing initiator(s) into the third mixture in a weight percent ratio of from about 0.01/99.99 to about 2/98 initiator/third mixture to form a fourth mixture,

15 (5) independently, mixing water and water-soluble or water-dispersible additives together in a weight percent ratio of from about 100/0 to about 80/20 to form an aqueous mixture;

(6) mixing the aqueous mixture and the fourth mixture together in a weight percent ratio of from 5/95 to about 50/50 aqueous mixture/fourth mixture to form a microemulsion;

20 (7) mixing the microemulsion with a thickening agent comprising a polymer or copolymer of acrylic acid monomer together in a weight ratio of from about 0.5/99.5 to about 5/95 to form a thickened microemulsion;

(8) coating the thickened microemulsion onto the substrate; and

(9) irradiating the microemulsion in order to form the pressure sensitive adhesive composition in contact with the substrate.

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Sub B1
16. The method of claim 15 wherein the water-soluble or water dispersible additives are selected from the group consisting of electrolytes, plasticizers, antimicrobial agents, therapeutic agents, and combinations thereof.

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